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ABSTRACT

In July 1987, North Carolina enacted legislation to provide funds for public school construction. This document defines and describes the educational spaces needed to support a comprehensive educational program and to set minimal standards for types of spaces and for sizes of spaces. Standards, comments, and recommendations are provided for the following educational spaces: (1) school sites; (2) regular classrooms; (3) science classrooms; (4) small group rooms; (5) rooms for exceptional children; (6) arts education (music, visual arts, theatre arts, and dance); (7) vocational education; (8) media centers; (9) physical education; (10) administration; (11) commons, circulation, and entries; (12) dining room and kitchen and (13) building support areas. The appendix provides selected general statutes that relate to public school construction in the state; basic education formulas for maximum legal class size and teacher allotments; recommended minimum facilities by size of school for arts, physical, and vocational education; and the school facility standards policy of the North Carolina State Board of Education. The appendix also contains a form required from boards of education that submit plans with deviations from the standards. (MLF)

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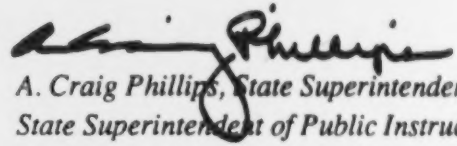
FOREWORD

Through the years the responsibility for providing public school facilities in North Carolina has rested with the counties and the special chartered school districts within them. Some state support for school construction was provided through the passage of statewide bond issues in 1949, 1953, 1963 and 1973 when it became apparent that the counties' resources could not keep pace with the increasing facility needs. Basically, however, the burden of providing school facilities has rested with local governments and the burden of funding operating costs has primarily been the responsibility of the State.

In keeping with this funding policy, the responsibility of assuring good, safe, functional buildings to support the educational program has also rested with the local governments and with the local boards of education who were the legal owners of the facilities. Various state agencies have always monitored all public construction for structural design, safety, sanitation and environmental impact. Designs, materials, sizes, numbers and types of spaces needed for the program and desired by the people have traditionally been left to the local boards.

In 1985 the General Assembly approved in principle a commitment to improve education for all students and began funding "The Basic Education Program." This legislation was designed to assure every child the opportunity to acquire the "basic requirements relating to a common core of knowledge and skills considered essential for mastery ... before graduation from a public high school in North Carolina." The "B.E.P." is an eight year commitment and, when fully funded, will provide more than $850,000,000 for additional teachers, programs and materials. The "B.E.P." also requires a State Standard Course of Study which provides a "comprehensive but concise outline of the content taught in the public schools." It describes the "What" and the "How" of the state curriculum. The General Assembly has honored its commitment to the "B.E.P." for each of the years since its approval with allocations according to the eight year funding schedule.

In 1987, the General Assembly, realizing the impact of the "B.E.P." on facility needs in the state and again realizing the magnitude of the existing facility needs, enacted the "School Facilities Finance Act of 1987" which will provide $3.2 billion for school construction over the next ten years. In keeping with the "B.E.P." and its standards for curriculum and instruction, the "Finance Act of 1987" directed the State Board of Education to develop and adopt "interim statewide school facility minimum standards ... (to) be used by the Commission on School Facility Needs to make its preliminary report on critical school facility needs in each county." Furthermore, the statute states "the statewide school facility minimum standards ... shall apply to the construction, reconstruction, enlargement, and improvement of all school buildings ... regardless of the source of funds for the project." In December 1988, the State Board of Education approved these standards which define and describe the minimum facility requirements to to support "The Basic Education Program" and to assure a safe, attractive, functional learning environment for every student.



A. Craig Phillips, State Superintendent
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PURPOSE

In July 1987, the North Carolina General Assembly enacted legislation to provide funds for public school construction to assist county governments in meeting their building capital needs, and to provide additional funds for selected counties with the greatest critical school facility needs.The legislation follows the state's recently adopted "Basic Education Program," which assures every child in North Carolina "a program of instruction which is fundamentally complete and which would provide a thorough grounding in...the arts, communication, media and computer skills, second languages, healthful living, mathematics, science, social studies and vocational education."

This document, in accordance with the legislation's direction, defines and describes theeducational spaces needed to support a good, modern, comprehensive educational program and to set minimal standards for types of spaces and for sizes of spaces. This document, consequently serves as a planning guide for those in the process of building, enlarging, or renovating school facilities. Administrators, teachers, lay persons and design professionals should find the document helpful as they go about the task of designing educational spaces for today and for tomorrow.

Finally, the document is intended (1)to serve as a guide in evaluating existing facilities for their functional adequacy, (2)to determine facility needs and (3)to develop sound, longrange building plans. Consequently, the document includes not only standards but also recommendations for improving facilities. The standards set forth in this document do not preclude or take precedent over existing standards defined and enforced by other agencies. Standards and other regulatory controls for school construction have been in effect for many years and continue in effect. All plans for new construction and renovations must have approval and specific permits from the appropriate state and local agencies. These permits and approvals are issued by:

- •State Department of Labor: Approval of elevator installations.
- •State Department of Insurance: Compliance with the North Carolina Building Code.
- •State Department of Human Resources: Approval for new onsite water systems.
- •State Department of Human Resources; Environmental Health Section: Building and kitchen sanitation.
- •State Department of Agriculture: Approval of propane gas installations.
- •State Department of Natural Resources and Community Development: Approval for allpublic owned sanitary sewage disposal systems.
- •State Department of Natural Resources and Community Development: Approval of soil sedimentation and erosion control plans where one acre or more of land is to be disturbed.
- •State Superintendent of Public Instruction:GS 115C-521(see Appendix)

Although intended to assure adequacy, standards can become restrictive to the efficient design of a facility. In an attempt to avoid such inhibiting restrictions, the standards must allow some minor deviation in spatial requirements where design efficiency dictates. Such flexibility is essential to good design but cannot be allowed to become a means of lowering standards. It must be understood that in certain circumstances some standards will not be appropriate or cannot be met due to atypical programs and special conditions. Also, many older, existing facilities will not meet many of the standards and the cost of renovations to bring them into compliance may be prohibitive.

Phased construction is often necessary and appropriate. Where a space to support the program is not provided, either due to lack of funding or other reasons, it must be shown on the site plan of the project submitted to the Division of School Planning.

Small school size may also affect compliance as multipurpose spaces may serve for specialized needs such as dance, theatre arts or vocational labs. Multipurpose spaces must be designed so that the room, furniture, equipment and storage are compatible with the intended programs. The intent of the standard is to assure that adequate space is provided for those classes and activities that make up instructional programs as mandated by "The Basic Education Program" and the "North Carolina State Course of Study." When single spaces can adequately provide for multiple uses, the standard will be considered met.

The facility standards do not replace the need for educational specifications. Educational specifications should be developed which describe the educational program to be implemented. From educational specifications the planners should be able to determine the unique spatial needs to support an individual program and which spaces can serve several activities or functions.

For a period of one year, these standards will not be mandated but will serve as "recommended" standards. Boards of Education which submit plans with deviations, must list and justify the deviations. The list must be approved by the local board of education and the board of county commissioners. This information will be reviewed by the State Board of Education each quarter.

LONG-RANGE PLANNING

The "School Facilities Finance Act of 1987" requires local boards of education to develop long-range organizational and facility plans. Specifically, the legislation states "local boards of education shall submit their long-range plans for meeting school facility needs to the State Board of Education by January 1, 1988, and every five years thereafter". To develop a long-range plan, including efficient utilization of existing facilities, priorities for new construction and renovation, cost estimates and estimates of available resources, a board of education must address the following five questions:

- How many schools are needed?
- Which grades will they serve?
- How many students will they accommodate?
- Where will they be located?
- Which students will they serve?.

In the 1950's, most rural school systems were organized to serve grades 1-12 or 1-8 and 9-12 while schools in urban areas were generally organized to serve grades 1-6, 7-9, and 10-12. In recent years, there has been a significant movement toward a middle school plan of organization across the state. A typical organization based on the middle school concept serves grades K-5, 6-8 and 9-12, but organizational patterns with schools for grades K-4, 5-8, 9-12 or K-6, 7-8 and 9-12 are not uncommon.

While the movement toward a middle school plan of organization has been substantial, other organizational patterns still exist. Alternative plans of organization will continue to be appropriate in some communities because of existing facilities, natural geographic boundaries, the sparsity of students, road patterns and travel times and distances. The Department of Public Instruction and the State Board of Education do, however, believe that a three-tier plan of organization which allows a specifically designed program for students in the middle grades is desirable and that a grade K-5, 6-8 and 9-12 plan of organization is preferable. The State curriculum and the "Basic Education Program" are designed around this organization. Local boards of education should continue to evaluate their organizational patterns and work toward this structure where feasible.

Several school systems in North Carolina now have programs for three and four-year old children. This trend is expected to continue and is encouraged. For some school districts, programs for pre-school children would be more appropriately located in neighborhood centers; for other districts, these programs might be located on the campus of neighborhood schools. Consideration should be given to housing three and four-year old children as boards of education develop long-range plans for possible reorganization and new facilities.

Boards of education are also encouraged to study the issue of optimal school sizes. As with grade structure, local conditions may require differences in school sizes with schools which are smaller or larger in membership than the optimum.

Boards of education are encouraged, however, to continue studying this issue and to strive for schools which are large enough to offer a comprehensive program and student services at a reasonable cost but yet small enough to offer a personal, caring atmosphere.

The Department of Public Instruction and the State Board of Education believe that elementary schools ranging from 450 to 700 students; middle schools ranging from 600 to 800 students; and high schools ranging from 800 to 1,200 students can offer an excellent educational program including a comprehensive curriculum. The board also believes that schools of these sizes can offer the most efficient use of space and personnel at a reasonable cost per student without losing personal contact with and among students. As with grade structure, school size must ultimately be determined by factors such as existing facilities, areas of population density, natural geographic barriers, road patterns, transportation times and distances and local preferences.

The Department of Public Instruction conducts surveys for local school systems to help local boards in developing long-range plans. Such a survey provides an outside evaluation of and recommendations for school organization, facilities and finance. This service is available without cost and upon request.

SCHOOL SITES

Standards

Grades	Acres
K-6	10 + 1/100 ADM
5-8	15 + 1/100 ADM
7-9	20 + 1/100 ADM
9-12	30 + 1/100 ADM

Recommendations

These factors should be used for evaluating existing or potential school sites:

- •Location (bus and auto routes)
- •Size (number of acres, road frontage)
- •Shape
- •Topography (usable acreage)
- •Access (buses, cars, pedestrians)
- •Traffic
- •Soil conditions (foundations,waste)
- •Plant life (trees, bushes)
- •Noise (airport, traffic, industrial)
- •Air pollution
- •Utilities (availability)
- •Television signals (ETV, school TV)
- •Security, protection
- •First cost
- •Developed cost (actual cost)

Other Planning Resources

Division of School Planning Guide Series-9 School Site.

Comments and Recommendations

The minimum acreages refer to usable land. A K-6 school of 500 students will need a minimum of 15 acres. A high school may need an additional area of 10 acres or more if a stadium and spectator parking are anticipated.

Most school districts purchase sites which exceed the minimum acreage requirements; however, because of the availability of adequate acreage in urban areas and usable land in certain areas of the state, the standard may not be obtainable . The Division of School Planning will assist representatives of the local school unit in determining if the site will be functionally adequate.

Natural features of a new school site should be considered for their potential contributions to the teaching of science. Natural areas suited to the teaching of biology and earth classes should be preserved in a landscaped plan.

Handicapped accessibility to all site functions, including athletic facilities, is required.

Grades	Standards Square Footage	Comments and Recommendations
K	1,200	Minor reductions in size are allowable when architectural design and detailing require it. Classrooms smaller than 1,000 square feet should not exceed a 3:2 length to width ratio. Individual toilets for K-1 classrooms should be paired with the adjoining classrooms to provide a boy's toilet and a girl's toilet.
1-3	1,000-1,200	
4-6	850-1,000	
7-12	750-850	
4-12 Computer classrooms (If required)	850-1,000	A computer room will be required if the local program does not disburse computers throughout the building or include them in the media area.

Ceiling Heights Room Size	Standards Ceiling Height	Comments and Recommendations
850 sq.ft. and less	9'-4"	Twenty percent (20%) of a room's ceiling may be lower provided the North Carolina Building Code minimum is met.
851-1,200 sq.ft.	10'- 0"	
Mobile classrooms	8'- 0"	

Windows	Standards	Comments and Recommendations
K-5	Classrooms must have windows equal to or greater than 8% of the floor area.	State legislation requires the local board of education to consider the placement of windows to take advantage of the climate of North Carolina for both light and ventilation. It is recommended that grades 6-12 classrooms have window areas equal to or greater than 6-8% of the floor area.
6-8	Classrooms must have windows.	
9-12	No more than 20% of the total number of teaching stations may be windowless.	

Wet Areas	Standards	Comments and Recommendations
A wet instructional area is required in grades K-3 and in grades 4-6 when science is taught in the classroom.		Wet areas should include a sink mounted in a counter top for instructional use. The location of the sink should allow maximum student participation. Storage designed for instructional supplies and student projects should be in this area. Coat and book storage may be located elsewhere. Wet areas are also recommended for middle grades. Hot water in classroom wet areas is not recommended.

Lighting	Standards Footcandles	Comments and Recommendations
	60-70	

SCIENCE CLASSROOMS

Science Grades	Rooms	Standards Square Footage
6-8	Science Room	1,000-1,200
9-12	Physical Science	1,200
	Biology	1,200
	Physics	1,200
	Earth Science	1,400
	Chemistry	1,500
	Multipurpose/ Science Room (if required)	1,500

Windows	Standards
K-12	Project and Science rooms must have windows.

Ceiling Heights	Standards
	10'-0"

Gas Outlets	Recommendations
Do not provide gas outlets in science rooms where not required by the program. Middle/junior high science rooms should have gas only to the demonstration table.	

Lighting	Standards Footcandles
Classrooms	60-70
Laboratory, workroom	100-150

Comments and Recommendations

A 1,200 square foot project room is recommended for science in elementary schools. Small schools may have a project room that is a multiuse space to serve more than one program, i.e., art, science, crafts, etc. Additional storage may be necessary for the specialists who use this room.

A multipurpose/science room is appropriate in small high schools where the enrollment does not justify separate specialized science rooms.

Sufficient work areas with sinks should be provided. Storage and teacher preparation rooms can be shared (square footage is not included in minimum size requirements). Dark rooms can be shared with the art and vocational programs. A 1,500 square foot chemistry room includes a lecture area and work stations.

Twenty percent (20%) of the room's ceiling may be lower provided the North Carolina Building Code minimum is met.

Gas installations must include master cut off valves and must comply with other safety code requirements.

Access to a large group instructional area, auditorium or teaching theatre with AV capability is needed for special lectures.

SMALL GROUP ROOMS

Rooms	Recommendations Square Footage
Remediation & resource labs	450

Ceiling Heights	Standards
Rooms	Ceiling Height
Remediation and resource labs	9'-4"

Windows	Standards
Required for 450 square foot rooms where a student spends over 2 hours. Recommended where possible for smaller spaces.	

Lighting	Standards
	Footcandles
	60-70

Comments and Recommendations

One or more small group classrooms should be provided for remediation, conferences, guidance, testing, etc., for groups up to twelve. Some smaller rooms may also be needed in addition to the 450 square foot rooms for smaller group activities.

Storage space for various instructional materials and equipment should be provided.

EXCEPTIONAL CHILDREN

Exceptional Children Self Contained

Rooms	Standards
	Square Footage

(See Regular Classrooms)

Exceptional Children Resource

Rooms	Standards
	Square Footage

(See Small Group Rooms)

Lighting	Standards
	Footcandles
	60-70

Wet Areas	Standards

Wet area requirements are the same as regular classrooms except certain programs will require an instructional area with water in both classrooms and resource rooms.

Ceiling Heights	Standards
Room Size	Ceiling Height
850 sq.ft. and less	9'-4"
851-1,200 sq.ft.	10'-0"
Mobile classrooms	8'-0"

Windows	Standards

Resource rooms occupied by one group for more than two hours and all self contained rooms must have windows.

Comments and Recommendations

Programs for exceptional children vary greatly depending on local factors. Spaces must be planned to accommodate educational programs identified in educational specifications. The local factors often result in spaces which are larger than the minimum requirements.

If resource rooms are clustered around a shared common area, they may be smaller.

Care should be taken to insure that the characteristics of fluorescent lighting does not adversely affect children with certain disabilities.

Programs serving exceptional children may also require cooking areas, toilets, bath/shower rooms and laundries.

Wet areas should include a sink mounted in a counter top for instructional use. The location of the sink should allow maximum student participation. Storage designed for instructional supplies and student projects should be in this area. Coat and book storage may be located elsewhere.

Classrooms for hearing impaired programs will require special acoustical treatment of the finishes, the mechanical system and possibly the lighting ballast.

Minimum requirements for handicapped accessibility as outlined in the North Carolina Building Code may not be adequate for special education programs.

Music Rooms	Standards
Grades	Square Footage
K-6	850-1,000
6-8	
General	850-1,000
Vocal	1,000-1,200
Instrumental	1,000-1,200
9-12	
Vocal	1,000-1,200
Instrumental	1,600-1,800

Ceiling Heights	Standards
Room Size	Ceiling Height
900 sq.ft. & less	9'-4"
900-1,000	10'-0"
1,000-1,200	12'-0"
1,200-1,800	14'-0"-16'-0"

Lighting	Standards
	Footcandles
	70-100

Comments and Recommendations

The elementary music room should be designed to accommodate general, vocal and instrumental music. Acoustical treatment is essential and windows are recommended. In smaller elementary schools, spaces to accommodate music plus other programs may be combined into a multipurpose area as outlined in the matrix "Recommended Minimum Facilities for Arts Education and Physical Education" found in the Appendix.

A single music room of designated size is appropriate for small middle schools. Separate rooms may be required as enrollment increases and when programs are offered simultaneously.

The room sizes indicated here do not necessarily include program support rooms such as offices and storage.

These minimum heights relate to flat floor rooms. Risers are not necessary, but rooms with risers will need ceiling heights adjusted to the highest riser so that an appropriate ceiling height and room volume are achieved. The ceiling height will be negotiable where a music room of less than 1,200 square feet is the only high ceiling space in the building or addition.

At least one handicapped station within a row of regular seating will be provided in accordance with the North Carolina Building Code.

ARTS EDUCATION - VISUAL ARTS

Art Rooms	Standards
Grades	Square Footage
K-9	1,000-1,400
9-12	1,200-1,500

Ceiling Heights	Standards
Grades	Ceiling Height
K-12	10'-0"

Windows	Standards
K-12	An art classroom must have windows.

Lighting	Standards
	Footcandles
General illumination	70
Task Lighting	Up to 150

Incandescent task and display lighting should be switched to avoid use as general illumination.

Comments and Recommendations

During the preliminary design phase the furniture and equipment plans should be developed showing studio and lecture relationships. The square footage requirements do not include storage rooms, kiln rooms, dark rooms, clay rooms, office, etc. Storage cabinets and shelving with flexibility are needed for a variety of supplies and projects.

In small elementary schools the visual arts program may be in a project room, i.e., art, science, crafts, etc. See the matrix "Recommended Facilities for Arts Education" found in the Appendix.

The ceiling height may vary, however, the average height should not fall below the minimum requirement. The minimum ceiling height is negotiable if the art room is the only space in the building or addition requiring more than 9'-4" ceiling.

Light sources may vary from daylighting to artificial sources. Artificial light sources should provide full color spectrum and task level illumination. Skylights, clerestories and rooftop light monitors are permissible. Outside work patios adjacent to classroom exterior windows and doors are recommended. Fluorescent fixtures are recommended; however, incandescent may be used for critical tasks where color is important. Provisions for darkening part or all of the room may be a design consideration.

Kilns have special electrical and ventilation requirements that should be provided even if the equipment is not in the contract. Paint spraying and hazardous material storage will be subject to the North Carolina Building Code.

Grades	Standards Square Footage
K-12	1,800-2,000

Ceiling Heights	Standards
	10'- 0"

Comments and Recommendations

The K-6 theatre arts room should be a large open space which is carpeted and acoustically treated. A small raised space with simple, individually controlled, directional lighting is required for the presentation and viewing of special projects. Design features such as builtin furniture should be avoided in order to provide maximum flexibility. The middle and junior high theatre arts room should be similar to the elementary classroom. If no other performing facility is available in the school, then this space may be designed as a small teaching theatre where both instruction and performance can take place. In either case, there should be a small raised performance area with simple, individually controlled lighting.

In smaller elementary schools, spaces to accommodate theatre arts plus other programs may be combined into a multipurpose area as outlined in the matrix "Recommended Minimum Facilities for Arts Education and Physical Education" found in the Appendix. Multipurpose spaces for middle and junior high schools should be evaluated on an individual basis.

The high school theatre arts room should be a large open space for activity based instruction. It should have a small, raised space with individually controlled lighting. The raised space is not essential where an adequately equipped performing facility is nearby and accessible during theatre arts instructional time. If a small teaching and performing facility is available for all theatre arts instruction to take place, then a separate theatre arts room may not be necessary. An additional feature of either situation is that flat surface work tables be available in order to carry out design and construction projects. In small high schools theatre arts and dance may be combined provided the design and additional support space required demonstrates functional adequacy. Support spaces include makeup, scenery construction, scenery and general storage.

Lighting	Recommendations
30 footcandles for stage setup illumination (fluorescent); 15 footcandles maximum for seating area. Special incandescent illuminated mirrors may be used for makeup in dressing rooms.	

Large auditoriums are not recommended for school purposes. The gymnasium or multipurpose/indoor playroom can be used for large assemblies.

If the board of education chooses to built a high school auditorium, consideration should be given to seating the largest class (ADM) x 8 sq.ft. plus about 4,000 square feet for the stage, storage and a small lobby. The auditorium should be planned as a theatre with suitable acoustical design, lighting system, sound system, storage, and support facilities such as makeup and scenery construction spaces. The entire facility should be designed for theatre arts instruction, although this will be a multipurpose space. Adjacent study and work spaces should be available to support and provide instruction in theatre history, literature, design, construction, acting, directing and performance. These support spaces could be unscheduled regular classrooms.

Grades	Standards
Grades	Square Footage
K-12	1,800-2,000

Ceiling Heights	Standards
	10'-0"

Windows	Recommendations
Recommended where possible	

Lighting	Standards
	Footcandles
	60-70

Comments and Recommendations

In smaller elementary schools spaces to accommodate dance plus other programs may be combined into a multipurpose area as outlined in the matrix "Recommended Minimum Facilizties for Arts Education and Physical Education" found in the Appendix. Multipurpose spaces for middle and junior high schools should be evaluated on an individual basis.

In small high schools theatre arts and dance may be combined provided the design and additional support space required demonstrates functional adequacy.

The dance classroom should be a large unobstructed space with either a suspended wooden floor or a floor covered with a portable or permanent dance surface which provides a resilient surface on which to move. Dance classrooms should not be carpeted or have only a cement and/or tile floor. It may be desirable to have mirrors on one wall of a shatter proof material or mounted to prevent shattering. An adjustable height dance bar may also be desirable. The classroom should be sound proofed or located so that music and other noises associated with dance instruction do not conflict with adjacent classrooms. There should be storage and/or closet space for students to use to store their personal belongings during the class. A separate lockable storage space for the dance teacher to store materials, equipment, recordings, props and other related personal items should be easily accessible. Bulletin boards and chalk boards are needed. Storage should be provided for mats or cushions that students sit on while viewing films or other instructional activities. It is desirable to locate the rooms near toilets and water fountains.

At the middle and high school levels, dressing room space is needed for students to change clothing.

VOCATIONAL EDUCATION

	Standards
Vocational Education (Grades 6-8)	
	Square Footage
Career Exploration Option	
Classroom only	850-1,000
Service Laboratory	1,300-1,500
Industrial Laboratory	1,100-1,300
Business Laboratory	1,300-1,500
Environmental Laboratory	1,100-1,300
Individual Program Option	
Industrial Arts/Technology Education (including lab, storage & office)	1,800-2,000
Agriculture (including lab, storage & office)	1,800-2,000
Consumer Home Economics	1,400-1,600
Business & Office Ed.	1,200-1,400
Vocational Laboratories (Grades 9-12)	
Business & Office Ed.	1,200-1,400
Consumer Home Economics	1,400-1,600
Marketing Education	1,000-1,200
ICT 850-1,000	
Heavy Equipment Laboratories (including lab,storage & office)	2,500-3,000
Agriculture	
Industrial Arts/Technology Education	
Trade & Industrial Education	
carpentry, metals manufacturing, furniture/cabinetmaking, automotive technology, auto body repair, industrial maintenance, textiles	

Comments and Recommendations

Local school districts may select the career exploration option or the more traditional individual programs option. Smaller middle grade schools may combine certain programs in multiuse labs as illustrated in the matrix "Recommended Minimum Facilities for Middle Grades Programs" found in the Appendix.

If a classroom is included for the Industrial Arts/Technology Education or Agricultural Education complex, provide a regular classroom.

The Basic Education Program states:

A basic high school vocational education program must include offerings in at least three of the following areas:

Agriculture Education	Health Occupations Education
Business & Office Education	Home Economics Education
Marketing & Distributive Education	Industrial Arts Education
Trade & Industrial Education	

Many high schools offer all seven programs. The number and type of laboratories will depend on courses offered locally. More than one laboratory for a program such as home economics may be necessary in larger schools.

Medium Equipment Laboratories (including lab,storage & office)	2,000-2,500
Health Occupations	
Occupational Home Economics commercial foods	
Trade & Industrial Education masonry, graphics, mechanical systems, electrical trades, cosmetology, welding	
Light Equipment Laboratories (including lab,storage & office)	1,600-2,000
Occupational Home Economics child care custom fashion and interiors	
Trade & Industrial Education drafting, electronics	

Ceiling Heights	Standards
See regular classrooms for vocational classrooms and light equipment laboratories up to 1,200 square feet.	
1,200-2,000 square feet	12'-0"
2,000 square feet and above	14'-0"

Lighting	Standards
	Footcandles
Classrooms	60-70
Laboratories, close work	100
Laboratories, general work	60-70

Windows	Standards
See regular classrooms for vocational classrooms and light duty laboratories. Laboratories with hazardous equipment must have windows, skylights or some other daylight source.	

Comments and Recommendations

Career centers serving several schools will affect the type and number of facilities needed at a high school.

A laboratory smaller than the standards may be approvable if a detailed layout of equipment is included in the final working drawings. The layout will be reviewed by the local vocational specialist, the Division of Vocational Education and approved by School Planning as part of the regular review process.

Multipurpose vocational laboratories may be necessary in small high schools. A shop-type facility, for example, could serve plumbing, electrical, and sheet metal programs. Multipurpose laboratories must also have a detailed layout to establish functional adequacy. In addition a multipurpose laboratory must meet the requirements outlined in the Purpose section of this guide.

A larger dark room with additional storage could serve art and science as well as the vocational programs.

A student conference area, office and storage area are to be provided for cooperative method programs. (Agriculture, Business, Marketing, Home Economics, and Trade & Industrial Education)

Laboratories that generate excess dust or other airborne pollution should have an exhaust system.

If a school store is part of Marketing Education, provide and additional 500 square feet.

Vocational classrooms without an exterior wall may be windowless if they have windows into a shop or laboratory which has an ample daylight source.

MEDIA CENTERS

Grades	Spaces	Standards Square Footage
K-12	Main Room (RLV)	4'-6'/student (ADM) not less than 1,600
K-5	Support Areas	1,200
6-8	Support Areas	1,800
9-12	Support Areas	2,000
K-12	Computer Room	1,000

Capacity	Standards
40 students or 10% of the membership (ADM) whichever is greater.	

CeilingHeights	Standards Ceiling Height
Main Room (RLV)	12'-0"
Support Areas	9'-4"

Comments and Recommendations

The school's media center should be located on the ground floor, be single story and be convenient to all learning areas of the school. The plan arrangement should not result in the RLV room (reading, listening and viewing) becoming a major thoroughfare for student traffic. Convenience to an outside entrance with access to restrooms allows the center to operate after hours and facilitates the delivery of materials and equipment. The media center's location should not preclude future expansion of the facility.

A proposed furniture and equipment plan should be developed during the early design development stage in order to determine functional adequacy. The minimum media collection must be equivalent to a school serving 400 students.

Minimum support areas include offices, work/production rooms, conference rooms, periodical storage, audiovisual equipment storage and spaces for a professional collection.

The computer room requires additional electrical outlets (surge protection devices are recommended), a central electrical control switch, a phone line (dedicated is recommended). Appropriate lighting, additional ventilation for equipment and security are additional planning considerations. A computer room which is part of the local media program will preclude any requirement for general use computer areas elsewhere.

Elementary schools should have a storytelling area for 29 pupils.

Varied ceiling heights in the main room (RLV) are desirable as part of an aesthetic, acoustical and lighting strategy.

Lighting	Standards
Spaces	Footcandles
Stack and storage areas	30
Main room and support areas	70

Windows	Recommended

Windows are recommended in the main media center room (RLV), but are not recommended for electronic equipment storage rooms. They are recommended in the support area but not necessary if there are windows into the main room (RLV).

Wet Areas	Standards

The work/production room requires a sink.

Other Planning Data From:

- School Planning
- Media and Technology Services

Comments and Recommendations

Lighting controls should be convenient and capable of darkening or dimming specific areas. The RLV should have a switch at the entry to control some general lighting. Electrical outlets (some with surge protection) should be coordinated with the furniture and equipment plan. Computer and electronic equipment will require more electrical outlets than required by code. Use fluorescent lighting in most areas. Metal halide may be used in the main area. Incandescent fixtures should be limited to special effect lighting.

Windows should neither admit distracting light nor hinder space utilization and should be equipped with draperies or darkening shades.

Television outlets should be conveniently located no higher than 48" above the floor.

Intercom speaker(s) should have independent volume control.

Consideration should be given to providing a MATV/CCTV system for the school (Specialized satellite instructional television). Provisions should be made to receive signals from the University of North Carolina Center for Public Television and bring it into the media center workroom.

The HVA/C system should be separately zoned from those parts of the building which are not mechanically conditioned all year. Special attention must be given to adequate ventilation and humidity control to prevent mold and mildew. Computer hardware and software must be protected from temperature extremes.

Handicapped access to the media center must meet the requirements of the North Carolina Building Code, except the 32" clear spacing for existing shelving will not apply to renovated or remodeled public schools. The spacing between movable furniture must allow for handicapped access.

PHYSICAL EDUCATION

Rooms		Standards
Grades	Spaces	Square Footage
K-6	Multipurpose/ indoor play	3,600
6-9	Gymnasium	5,000
	+ seating	Varies
9-12	Gymnasium 84' court	6,200
	+ seating	Varies

Comments and Recommendations

K-6 indoor play areas should include an office, storage and toilets for boys and girls. Add space if stage is included. The 6-9 grade gymnasium should include dressing and shower areas, offices and some storage. Assembly and spectator use may require increased size. The 9-12 gymnasium should include space for two play courts, spectator seating, dressing, office areas, storage and a lobby. Additional P.E. and athletic facilities may be needed to schedule the program in larger schools. Additional storage may be needed for exceptional children programs.

An auxiliary gymnasium with a minimum of 3,600 sq.ft. is recommended for schools with 1,000 and more students.

Windows	Standards
Play areas and gymnasiums must have windows or other daylight sources to provide natural lighting.	

Windows in physical activity areas should be located to prevent glare. Locker rooms should have a daylight source for safety.

Lighting	Standards
Spaces	Footcandles
Exercise areas, gymnasium and locker rooms	30

Raise light level to 50 footcandles for athletic events.

Ceiling Heights	Standards
Grades	Ceiling Height
K-6	15'-0"
6-9	18'-0"
9-12	20'-0"
Support areas under 850 sq.ft.	9'-4"
Dressing, showers, etc.	10'-0"
P.E. and athletic teaching areas (weight, team, wrestling rooms)	12'-0"

Twenty percent (20%) of the gymnasium and play room ceiling may be lower provided the North Carolina Building Code minimum is met. All play rooms and gymnasiums are teaching stations and require good acoustics. The ceiling is the best area to treat acoustically.

Swimming pools are a local option that is recommended. An instructional pool can serve many programs and the design should meet the requirements of the educational specifications. It is recommended that a competition pool be 50 meters with 6 lanes. Community use of the multipurpose room, gymnasium or swimming pool may require additional design considerations.

See Planning a Fieldhouse, Division of School Planning, 1987

Rooms	Recommendations
	Square Footage
Principal	200
Assistant principal	150
Reception area	400
Secretary	150
Other student services	200
Workroom/Storage	200
Conference room	200
Record storage	100
General storage	100

Lighting	Standards
Spaces	Footcandles
All areas	80-100
Conference room	50
Storage room	20

Comments and Recommendations

Size and number of spaces will vary according to staffing.
Partition construction should allow for flexibility.

STUDENT SUPPORT AREAS

Rooms		Recommendations
Grades	Rooms	Square Footage
K-5	Guidance	450
6-12	Guidance	300
K-12	Counselor's Office	150
K-5	Other student services	150
6-12	Other student services	200
K-8	Health room	200
9-12	Health room	150

Lighting	Standards
	Footcandles
	60-70

Comments and Recommendations

Elementary guidance areas serve small group and individual guidance and should include a private counselors office. Schools with more than one counselor may need additional space.

The 6-12 guidance recommendation is for a small school with one counselor. Larger schools will require additional counselor offices. Depending on the size of the school, the reception area may need to be expanded to handle a number of students who may use the catalogues and other materials in the guidance center.

The health room may serve the nurse and other medical professionals and as a temporary station for sick students. The health room should be located to allow for easy supervision and should include a toilet.

Rooms designated for other student services may house social workers, psychologists or other health professionals. Student offices may be needed for student publications, student government and student clubs.

STAFF SUPPORT AREAS

Rooms		Standards
Grades	Rooms	Square Footage
K-3	Teacher office/work space	100-125
4-12	Teacher office/work space	80-100
K-12	Special assistant and itinerant teacher office/work space	80-100
K-12	Workroom	Varies
K-12	Lounge	Varies

Telephones	Standards
Faculty use (exclusive of Child Nutrition and Administration)	1 per 200 ADM

Staff Toilets (See comments and recommendations)

Lighting	Standards
	Footcandles
Lounge and toilets	30
Workrooms and offices	50-70

Comments and Recommendations

Teacher office/work spaces should be an extension of the classroom where feasible. Combined or shared areas are recommended for efficient and flexible use of the office/work spaces. In addition to a desk and chair the work space should include tables, shelving and storage.

Work space dividers should have acoustical treatment which will allow telephone and computer use in combined or shared areas.

Work space must be provided for instructional, lab, and clerical teacher assistants (one per 285 students in ADM). Provide one office/work space per projected itinerant teacher plus an appropriate number for volunteers and student teachers.

One or more centralized workrooms are required for copy machines, duplicators, specialized computers and other equipment and supplies which are not typically located in teacher office/work spaces.

Size and number of lounges will be determined by faculty size and building plan. Provide limited kitchen facilities.

Faculty telephones must be located for private use.

Faculty toilets should be located near classrooms. The minimum fixture count for the staff must be based on Public Office Building Occupancy, not School Occupancy (Table 922.2 North Carolina Building Code, Volume II). The ratio of male and female staff must be considered in the use of Table 922.2. Faculty toilets should have a parcel shelf, a place to hang garments, a full length mirror, and an appropriate area for grooming.

COMMONS, CIRCULATION AND ENTRIES

Corridor Widths	Standards
Serving more than two classrooms	8'-0"
Serving more than ten classrooms	9'-0"
High school major corridors	12'-0"
Lockers along one wall add	2'-0"
Lockers along two walls add	3'-0"

Commons Size	Recommendations
Grades	Square Footage
7-12	Varies

Entries	Recommendations
Bus rider entries and automobile rider entries should receive equal attention.	

Stairs	Standards
A single run of stairs will not exceed 8'-0" without a landing. (The code limit which is greater is not satisfactory for schools.)	

Toilets	Recommendations
Gang toilet entries should have adequate privacy screening that does not depend on doors.	

Lighting	Standards
Most areas must have 20 footcandles and a maximum of 30 footcandles in toilets.	

Ceiling Heights	Standards
All Spaces	9'-4"

Doors	Recommendations
Avoid paired doors. Use an appropriate number of individual doors. Provide covered areas at all exterior doors.	

Comments and Recommendations

During class changes, wide corridors in secondary schools serve a social function better than a commons. Narrow corridors amplify unacceptable behavior.

Commons should be designed as a student social center. Location and design of commons are more important than size.

Student entries and areas near the cafeteria are good locations for a commons. Ceremonial and visitors' entries can be combined with the student entries.

The minimum code width for stairs may not be adequate for two-way traffic in 6-12 schools.

Many schools have reduced social problems and maintenance by replacing entry doors to toilets with privacy entrances. Where vandalism is a problem, reinforced masonry privacy partitions should be used around commodes and urinals. Natural lighting is desirable in all areas. Light switches located in the toilets and corridors should be key operated or located in the administration area or equipment rooms not accessible to students.

Except for delivery areas, use multiple single doors rather than double doors.

DiningRoom	Standards
Grades	Square Footage
K-6	10
5-8	10
7-9	12
9-12	12
	Per pupil dining

Kitchen/Serving	Recommendations

*The total area for grades K-12 can vary from 856 square feet per 100 meals served to 2,880 square feet per 1,500 meals served.

Meals Served	Square Footage
100	856
250	1,261
500	1,518
750	1,938
1,000	2,208
1,250	2,566
1,500	2,880

Lighting	Standards
Rooms	Footcandles
Kitchen, office,serving and preparation	70
Dining areas and storageareas without natural light	20

OtherPlanningResources

*Equipment Guide for On-site School Kitchens,U.S.Department of Agriculture.

Comments and Recommendations

The dining area size is determined by dividing the number of participating children by the number of seatings times the square footage per pupil (size = ADM ÷ number of seatings x sq.ft. per pupil). A very small school may have one seating. A very large school may have four seatings. For the typical school three seatings makes the best use of cafeteria facilities. A program of continuous serving and seating requires some additional planning and may be most efficient.

These ratios relate to a complete lunch and are a valid basis for any public school child nutrition program which is operated in a self-contained cafeteria. The term "kitchen" includes all the usual support areas needed for preparing and serving food for school children and staff.

The minimum standards for child nutrition facilities are based on a traditional program which includes a full-service kitchen and seating to accommodate the entire student body in shifts. The standards would not be appropriate where central kitchens or satellite food preparation areas are used. Likewise, the dining room area could be reduced for schools with open lunch periods which do not serve the entire student body. For these atypical situations the board of education should provide a description of the child nutrition program which must be accommodated. Refer to Public School Laws of North Carolina, Article 17. Supporting Services, Part 2 Food Service, 115C-263 and 115C-264.

DESIGN INFORMATION

Ceilings

Lay-in ceilings are most often used and are acceptable. Gypsum board is recommended in small spaces, low ceiling areas, toilets and dressing rooms, and unsupervised areas. Multipurpose rooms and gymnasiums should have a cementitious fiber roof deck for proper acoustics.

Walls

Masonry walls are preferred. Gypsum board stud walls require more maintenance. Chair rails and double layering of sheetrock are recommended for increased durability. Stud walls in administrative and guidance areas may be preferred for flexibility.

Floors

Primary classrooms should have a good grade of carpet since many activities take place on the floor. Resilient tile is recommended for other classrooms and for wet areas in carpeted rooms. Multipurpose rooms and gymnasiums should have resilient floors such as wood, synthetic or high density carpet. Dance rooms should have wood floors.

Carpeting is recommended in corridors for acoustical control. There should be a separate area of carpet at outside doors so that it can be replaced easily.

Terrazzo is often used in corridors when durability is desired.

Lighting

Fluorescent lighting is recommended for general lighting. Incandescent lighting should only be used for limited accent lighting, stage lighting and special art room lighting. Gymnasiums should use metal halide fixtures. Metal halide should be considered in other large volume spaces.

Fluorescent fixtures should have three or four tubes and double switching to control inside tubes separately. Fixture in dishwashing areas and shower rooms should be moisture resistant.

Handicapped Accessibility Standards

Each teaching station should have an area that meets the requirements of the North Carolina Building Code. In regular classrooms, this can be accomplished by rearranging the desks. Laboratories and other specialized areas may need one station modified for accessibility. Programs for exceptional children may entail design features that exceed the building code requirements.

Rooms	Recommendations Square Footage	Comments and Recommendations
Mechanical rooms	Varies	Sizes and locations of rooms are determined by need.
Electrical rooms	Varies	
Custodial rooms	Varies	Where mechanical equipment is located on the roof or mezzanine, permanent stairs are recommended.
Storage areas	Varies	
Book storage	Varies	
General storage	Varies	All support areas need ventilation.
		Louvers in interior doors are not recommended; undercut doors instead.
		Provide a storage area for yard maintenance equipment and combustible materials.
		Allow adequate space above mechanical equipment for ceiling installation and maintenance.

APPENDIX

SELECTED GENERAL STATUTES

The following are the General Statutes that relate to public school construction in North Carolina:

G.S. 115C-521. "Erection and repair of schoolhouses.- The building of all new schoolhouses and the repairing of all old schoolhouses shall be under the control and direction of, and by contract with, the board of education in which such building and repairing is done. Boards of education shall not invest any money in any new building that is not built in accordance with plans approved by the State Superintendent as to structural and functional soundness, safety and sanitation, nor contract for more money than is made available for its erection. All contracts for buildings shall be in writing and all buildings shall be inspected, received, and approved by the county or city superintendent and the architect before full payment is made therefore: Provided, that this section shall not prohibit boards of education from repairing and altering buildings with the help of janitors and other regular employees of said board . . ."

School Planning does not issue the State Superintendent's certificate of approval until approval is received from the following:

- Department of Insurance (which enforces the North Carolina Building Code)
- Environmental Health Section of the Division of Health Services of the Department of Human Resources (where applicable)
- Water Quality Section of the Division of Environmental Management of the Department of Natural Resources and Community Development (where applicable)
- Land Quality Section, Division of Earth Resources, Department of Natural Resources and Community Development (where applicable)

G.S. 58-193. "Commissioner to inspect State Property; plans submitted .... No board, commission, superintendent, or other person or persons authorized and directed by law to select plans and erect buildings for the use of the state of North Carolina or any institution hereof, or of the use of any county, city, or incorporated town or school district shall receive and approve of any plans until they are submitted to and approved by the Commissioner of Insurance of the State as to the safety of the proposed buildings from fire, as well as the protection of the inmates in case of fire."

G.S. 133-1.1 requires the services of an architect and/or engineer on projects costing more than $45,000. A certificate of compliance is required from city or county inspectors for the specific trades involved or from a registered architect or engineer.

G.S. 115C-489.3. Statewide school facility minimum standards.--(a) Prior to October 1, 1987, the State Board of Education shall develop and adopt interim statewide school facility minimum standards. These interim standards shall be used by the Commission on School Facility Needs to make it preliminary report on critical school facility needs in each county.

(b) Prior to June 1, 1988, the State Board of Education shall adopt statewide school facility minimum standards to define what constitutes adequate facilities, furniture, equipment, apparatus, and spaces. The State Board of Education shall provide a process for justifying deviations from adopted standards. The State Board of Education shall report quarterly to the Joint Legislative Commission on Governmental Operations, until the standards are adopted, as to the Board's progress in developing standards. These standards shall be used by the Commission on School Facility Needs to make its final report on critical school facility needs in each county.

(c) The statewide school facility minimum standards adopted by the State Board of Education pursuant to subsection (b) of this section shall apply to the construction, reconstruction, enlargement, and improvement of all school buildings after the standards are adopted, regardless of the source of the funds for the project.

Maximum Legal Class Size (1987-88)

Grades	Teacher/PupilRatios
K-9	1:29.0
10-12	1:33.0
7-12	1:150.0/day

Teacher Allotments 1992-93

Grades	Teacher/PupilRatios
K-3	1:20.0
4-6	1:22.0
7-8	1:21.0
9-12	1:24.5
K-12 summer school	1:15.0*
7-12 vocational education	1:95.0

*Not to exceed 10% of school year ADM

These allotments do not include special allocations for programs for the handicapped, academically gifted and pregnant. Refer to the current edition of State Board Procedures Governing Programs and Services for Children With Special Needs.

"The Basic Education Program" states that appropriate class sizes are 23 for grades K-3 and 26 for grades 4-12. These 1992-93 teacher allotments will be necessary to maintain the appropriate class sizes and to expand the curriculum required by the B.E.P. G.S. 115C-301(d) states that no single class may have more than three students over the allotment ratio applicable to that grade level at the end of the second school month. After the second month of school, the maximum class size shall be no more than 10% beyond the allotment ratio for the respective grade level. If this legislation remains intact, the maximum legal class size in 1992-93 will be three students (or 10% after the second school month) more than these ratios at each grade level. However, the maximum daily load for teachers in grades 7-12 is 150 students. Current State Board policy establishes the maximum class size at 50 students in selected areas such as music, physical education, and similar classes, with the exception of activities such as band and choral music. Typewriting classes are now subject to normal class size maximums.

Recommended Minimum Facilities for Arts Education and Physical Education

Elementary School ADM	200	350	500	700
Project Room	*			
Visual Arts 1200 sq. ft.		*	*	*
Music 1000 sq. ft.			*	*
Theatre Arts 2000 sq. ft.				*
Dance 2000 sq. ft.				*
Theatre Arts/Dance 2000 sq. ft.			*	
Music/Theatre Arts/Dance 2000 sq. ft.		*		
Music/Theatre Arts/Dance/PE 3600 sq. ft.	*			
PE 3600 sq. ft.		*	*	*
Teachers for the above plus second language @ .9/100	**1.8**	**3.15**	**4.5**	**6.3**

A project room should be available for art and science.
Additional facilities may be needed to house locally paid teachers.

7/28/88 Division of School Planning

Recommended Minimum Facilities for Middle Grades Vocational Programs

Middle grades Vocational programs are elective. A local administrative unit has two vocational options - career exploration or individual program offerings (Agricultural Education, Business Education, Home Economics Education, and/or Industrial Arts/Technology Education). Minimum facilities should be based upon student demand.

CAREER EXPLORATION

AREA/MEMBERSHIP	200	400	600	800
Occupational Information	In Media Center	In Media Center	*	*
Business Laboratory				*
Environmental Laboratory				*
Industrial Laboratory				*
Service Laboratory				*
Business/Service Laboratory		*	*	
Industrial/Environmental Laboratory		*	*	
Combined Lab. (Business, Environmental, Industrial & Service) ①	*			

① Combination Laboratories will need additional storage areas.

INDIVIDUAL PROGRAMS

AREA/MEMBERSHIP	200	400	600	800
Industrial Arts/Technology Education		*	*	*
Business and Office Education		* ①	* ①	* ①
Home Economics Education			* ①	* ①
Agriculture Education				* ②

① May be a classroom/lab
② Optional

9/88 Division of School Planning

POLICY REGARDING SCHOOL FACILITY STANDARDS
NORTH CAROLINA STATE BOARD OF EDUCATION
December 1, 1988

In order to provide reasonable flexibility to local school units involved in school construction and to ensure appropriate school construction through continuous monitoring by the State Board of Education, the following policy is adopted:

A. The Department of Public Instruction will modify the proposed school facilities standards and bring revised standards to the Board in December 1988.

B. Effective January 1, 1989 the Board's School Facility Standards will become "Recommended" rather than "Required."

C. The "Recommended" Standards will remain in effect until December 31, 1989.

D. If a local school unit deviates, or plans to deviate, from the "Recommended Standards," the local Board of Education and the Local Board of County Commissioners must jointly notify the Department of Public Instruction's Division of School Planning, in writing, as to the nature of the deviations and the reason for the deviations. This notification must be sent to the Department at the earliest possible date but prior to approval under G.S. 115C-521.

E. The Department will inform the State Board of Education, quarterly, regarding all reports of local deviations from the "Recommended" standards.

F. On or about December 31, 1989 the State Board of Education will evaluate the deviations which have been reported, make a judgement as to the appropriateness of school construction which has occurred during the year of "Recommended" standards, and determine whether the Board's Facility Standards should remain "Recommended" or become "Mandated."

G. The Board will ensure that the General Assembly is fully informed as to this plan, and the Board will further involve the General Assembly in the final decision, in December 1989, as to whether the standards should be "Recommended" or "Mandated."

Deviation from the Revised North Carolina Public School Facility Standards (December 1988)

_____ _____

Board of Education Project/Grades

	Deviation		Comments and Explanations
	Less than 10%	More than 10%	
Site	_____	_____	_____
Regular Classroom	_____	_____	_____
K	_____	_____	_____
1-3	_____	_____	_____
4-6	_____	_____	_____
7-12	_____	_____	_____
Science Rooms	_____	_____	_____
Exceptional Children	_____	_____	_____
Arts	_____	_____	_____
Music	_____	_____	_____
Visual	_____	_____	_____
Theater	_____	_____	_____
Dance	_____	_____	_____
Vocational	_____	_____	_____
Media Center	_____	_____	_____
Physical Education	_____	_____	_____
Staff Offices	_____	_____	_____
Circulation	_____	_____	_____

Approved by the _____ Board of Education on _____, 1989

_____, Chairman _____, 1989

_____, Secretary, Ex-officio _____, 1989

Board of County Commissioners:

Approved by the _____ Board of County Commissioners on _____, 1989

_____, Chairman _____, 1989

_____, County Manager or Clerk _____, 1989

DIVISION OF SCHOOL PLANNING PUBLICATIONS

QUANTITY

_____ Facilities for Early Childhood Education (March, 1970)

_____ Facilities for Occupational Education: Grades 7-12 (September, 1974)

_____ Final Inspection of Public School Construction Projects (August, 1987)

_____ Identification of Potential Structural Problems in Existing School Facilities (March, 1986)

_____ Issuing School Bonds (1981)

_____ Manual for Merger (March, 1987)

_____ Minimum Check List for Mechanical and Electrical Plans and Specifications (October, 1975, Includes a Supplement Prepared in November, 1982)

_____ North Carolina Public School Facility Standards (June, 1988)

_____ Planning and Constructing a New School

_____ Planning for Built-Up Roofing (May, 1974)

_____ Planning for Education: People and Processes (March, 1973)

_____ Procedures for Preparations, Review and Approval of School Building Plans and for Inspection of Building Projects (September, 1988)

_____ Property Accounting for North Carolina Schools (February, 1988)

_____ Pupil Population Projections (Fall, 1980)

_____ Review and Approval of Small Public School Construction Projects (Revised August, 1988)

_____ School Closing Procedure (November, 1987)

_____ School Finance, 1985-86

_____ The School Site - Land for Learning (Revised April, 1988)

_____ New Schools for North Carolina (Revised August, 1988)

_____ Schools of Interest 6 (March, 1986)

_____ Selected Laws that Relate to the Construction and Repair of Public School Buildings in North Carolina (Revised August, 1988)

_____ Services of the Division of School Planning

_____ Special Chartered School Districts of North Carolina (March, 1987)

TECHNICAL SERIES

_____ Moisture Protection (August, 1971)

_____ Conversion of 440-Yard Running Track to 400-Meters (May, 1979)

_____ Lighting for School Facilities Using High Intensity Discharge Fixtures (March, 1983)

DESIGN IDEAS

_____ Special Facilities for Trainable Mentally Handicapped Students (February, 1982)

_____ Planning a Fieldhouse (July, 1987)

_____ Window Walls (July, 1988)

_____ Ceiling Heights (July, 1987)

_____ Teacher Office/Work Spaces (October, 1988)

RETURN TO: The Division of School Planning, N. C. Department of Public Instruction, 217 West Jones Street, Education Annex I, Raleigh, NC 27603-1712

_____
NAME/TITLE

_____
ADMINISTRATIVE UNIT/FIRM/ORGANIZATION

_____
ADDRESS

11/21/88